US-PAT-NO: **6526034**

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TITLE: Dual mode subscriber unit for short range, high rate and
                 long range, lower rate data communications

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Brief Summary Text - BSTX (3):
   As a result of its familiarity with these two technologies, the general
population now increasingly wishes to not only access computer networks, but to
access such networks in wireless fashion as well. This is of particularly
concern to users of portable computers, laptop computers, hand-held personal
digital assistants (**PDAs**) and the like, who would prefer and indeed now expect
to be able to access such networks with the same convenience they have grown
accustomed to when using their cellular telephones.

Brief Summary Text - BSTX (16):
   Thus, the same equipment can be used without any reconfiguration and even
without the knowledge of the user. For example, when the user is on a company
campus and within range of the less expensive, faster W-LAN, the user's laptop
or **PDA** automatically communicates with the W-LAN. If the user leaves the
office, for example, for lunch, or at the end of the day, heads home, the same
laptop or **PDA,** being out of range of the W-LAN, will automatically communicate
instead with the wider range, more expensive cellular network.

Detailed Description Text - DETX (3):
   The subscriber unit 20 connects to terminal equipment 22 such as a portable
or laptop computer, hand held Personal Digital Assistant (**PDA**) or the like, via
a computer interface 24 such as a modem. The interface 24 in turn provides
data to a protocol converter 25, which in turn provides data to a multichannel
digital transceiver 26 and antenna 27.

Detailed Description Text - DETX (4):
   The interface 24 receives data from the computer 20, and together with
appropriate hardware and/or software, converts it to a **format** suitable for

transmission such as in accordance with known communication standards. For example, the interface 24 may convert data signals from the terminal equipment 22 to a wireline physical layer protocol **format** such as specified by the Integrated Services Digital Network (ISDN) standard at rates of 128 kbps, or the Kflex standard at rates of 56.6 kbps. At a network layer, the data provided by the interface 24 is preferably formatted in a manner consistent with suitable network communication protocols such as TCP/IP to permit the terminal equipment 22 to connect to other computers over networks such as the Internet. This description of the interface 24 and protocols is exemplary only and it should be understood that other protocols can be used.

Detailed Description Text - DETX (5):
    The protocol converter 25 implements an intermediate protocol layer suitable for converting the data provided by the interface 24 to a **format** appropriate for the multichannel transceiver 26 according to the invention, and as is described in greater detail below.

Detailed Description Text - DETX (10):
    At the ISP 40-1, the multichannel transceiver 44-1 provides functions analagous to the multichannel transceiver 26 of the subscriber unit, but in an inverse fashion. The same is true of the protocol converter 46-1, that is, it provides inverse functionality to the protocol converter 25 in the subscriber unit 20. The ISP 40-1 accepts data from the **protocol converter** 46-1 in the **TCP/IP** frame **format** and then communicates such data to the Internet 49-1. It should be understood that the configuration of the remaining ISP equipment 48-1 may take any number of forms such as a local area networks, multiple dial up connections, T1 carrier connection equipment, or other high speed communication links to the Internet 49-1.

Detailed Description Text - DETX (13):
    Attention is now turned to the functions of the protocol converters 25 and 46, which can be thought of as an intermediate layer within the context of the Open System Interconnect (OSI) model for communication. In particular, the **protocol converter** provides a bandwidth management functionality 29 implemented between a physical layer such as that provided by the CDMA protocol in use with the multichannel transceivers 26 and a network layer protocol such as **TCP/IP** providing connections between the terminal equipment 22 and the Internet 49-1 or server 49-2.

Detailed Description Text - DETX (40):
    FIG. 6 shows a terminal 615 which includes a subscriber unit 101 incorporating the features of the present invention. A user at this terminal 615 desires to communicate with a second site using a portable computer 110, **PDA** or other similar device. The computer 110 is connected to the subscriber unit 101. For example, the subscriber unit 101 may be a PCMCIA card which plugs into a PCMCIA slot, or it may connect to the computer 110 with a modem cable.